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ABSTRACT

This paper examines negative incorporation in various lects of two historically related sign languages, French Sign Language and American Sign Language. Negative incorporation not only offers interesting insights into the structure of French and American Sign Language, but also into the descriptive and explanatory power of variation theory. By viewing negative incorporation in a dynamic framework, it is possible to describe the variable usage of it as a phonological process in French Sign Language and as a grammatical process in American Sign Language; to argue for possible early creolization in American Sign Language; to show the historical continuum between French Sign Language and American Sign Language, despite heavy restructuring; and to demonstrate the influences of social variables on language variation and change, especially illustrating the progressive role of women in sign language change and the conservative forces in French Sign Language as compared with American Sign Language. (Author/CLK)

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NEGATIVE INCORPORATION IN FRENCH AND AMERICAN SIGN LANGUAGE

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Abstract. This paper examines Negative Incorporation in various lects of two historically related sign languages, French Sign Language and American Sign Language. Negative Incorporation not only offers interesting insights into the structure of French and American Sign Language, but also into the descriptive and explanatory power of variation theory. By viewing Negative Incorporation in a dynamic framework, we are able to describe the variable usage of Negative Incorporation as a phonological process in French Sign Language and as a grammatical process in American Sign Language, to argue for possible early creolization in American Sign Language, to show the historical continuum between French Sign Language and American Sign Language despite heavy restructuring, and to demonstrate the influences of social variables on language variation and change, especially illustrating the progressive role of women in sign language change and the conservative forces in French Sign Language as compared with American Sign Language (sociolinguistics, Sign language, creolization, linguistic change).

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1.0 Introduction. In this paper, we will examine Negative Incorporation in various lects of two historically related sign languages, French Sign Language (FSL) and American Sign Language (ASL). The framework for the analysis is the dynamic sociolinguistic paradigm discussed by Bailey (1973) and others (Bickerton 1975, Fasold 1975). This will allow us to demonstrate the ways in which Negative Incorporation reveals insights into the dynamic nature of language variation in FSL and ASL and into the power of social variables in influencing language use.

Before discussing informants, data, and analysis, it will be useful to review briefly the historical relationship between FSL and ASL. ASL is historically related to the French Sign Language of the early nineteenth century. In 1816, T.H. Gallaudet, a hearing American who had learned FSL, and L. Clerc, a deaf French man, brought FSL to the U.S. Popular opinion states that ASL later developed from FSL, but there is information that suggests that FSL was creolized with a sign language or languages already existing in the U.S. before 1816 (Woodward 1976a,b).

It has been hypothesized (Woodward 1976b) that there were sign languages in use in the U.S. before 1816, that is before FSL was brought to the U.S. Because of poor transportation and the absence of any schools for the deaf in the U.S.,[2] these

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languages probably had great regional variations and more than likely were mutually unintelligible. It appears that FSL was creolized with existing varieties of sign language in the U.S., producing modern ASL. Evidence for this appears in a study (Woodward 1976b) comparing modern Parisian FSL with modern ASL. 872 modern French signs were researched. 42.7% of these were found to be non-cognates, that is they had no formational or semantic relationship to American signs.

The study furthermore showed that existing procedures of glottochronology would date the arrival of FSL in America between 132 BC to 163 AD with a 90% level of confidence.[3] This great difference may be explained through creolization, since massive changes occurring in the process of creolization can happen much faster than natural internal language change. The presence of fairly substantial amounts of restructurings like metathesis also supported the theory of early creolization of FSL upon its arrival in the U.S.

2.0 Data and Informants. Woodward (1973,74) discussed Negative Incorporation in American Sign Language. ASL has several verbs that may be negated by a bound outward twisting movement of the moving hand(s) from the place where the sign is made. Five ASL verbs that variably undergo Negative Incorporation were researched by Woodward (1973,74): GOOD, HAVE, KNOW, LIKE, WANT.

This paper tests FSL cognates for these same five verbs to determine if FSL also has a Negative Incorporation rule similar to ASL.

Data for this study was collected from 144 American deaf signers[4] in 1973 by Woodward and from 60 French deaf signers during the summer of 1975 by Woodward and DeSantis. There were 108 deaf informants from the northeastern United States (Washington, D.C., Maryland, and New York) and 36 from the northwestern U.S. (Montana and Washington). The American deaf informants were selected according to three social factors: whether or not they had deaf parents, whether they learned signs before or after the age of six, and whether or not they attended any college. Of the 108 informants from the northeast, 27 had deaf parents and 81 had hearing parents, 56 learned signs before the age of six and 52 learned signs after the age of six, 44 had attended some college and 64 had attended no college. Of the 36 northwestern informants, 6 had deaf parents and 30 had hearing parents, 24 learned signs before the age of six and 12 learned signs after the age of six, and 17 had attended some college, while 19 had attended no college.

The 60 French deaf informants for this study were chosen primarily on the basis of region. 12 informants were from Paris, 10 from Toulouse, 23 from Albi, and 15 from Marseilles. Nine of the informants had deaf parents and 51 had hearing parents.

We were not able to obtain information on the age of sign language acquisition for all informants. The variable of college education is totally superfluous for French informants, since French deaf people are prohibited from attending any college in France.

3.1 American Signs. The five American verbs found to undergo Negative Incorporation were tested for the northeastern and northwestern informants in two studies (Woodward 1973,74). Responses of informants were found to be implicationally ordered as shown in Table 1 with 97% scalability for northeastern informants.

Lect	HAVE	LIKE	WANT	KNOW	GOOD	Northeastern	Northwestern
1	+	+	+	+	+	17	12
2	-	+	+	+	+	23	14
3	-	-	+	+	+	50	7
4	-	-	-	+	+	10	1
5	-	-	-	-	+	8	2
6	-	-	-	-	-	0	0
Total						108	36

Table 1: Negative Incorporation for American Signers.

3.11 Features Conditioning the Variation in ASL. We have seen that the Negative Incorporation rule applies for signers first in the environment of GOOD, second in the environment of KNOW,

third in the environment of WANT, fourth in the environment of LIKE, and fifth in the environment of HAVE.

We hypothesize that there are phonological features that are similar in these five verbs, and that are conditioning the variation. Table 2 shows the phonological features necessary to distinguish these verbs.

Feature	HAVE	LIKE	WANT	KNOW	GOOD
Face	-face	-face	-face	+face	+face
Trunk	+trunk	+trunk	-trunk	-trunk	-trunk
Outward Movement	-out	+out	-out	-out	+out

Table 2: Features on Negative Incorporating Verbs.

From Table 2 we see that it is possible to weight these features, assigning to that feature that influences operation of the rule most frequently. To successively less important environmental features we can assign , , etc. Table 3 shows the proper weighting of features.

Feature	HAVE	LIKE	WANT	KNOW	GOOD
Face				face	face
Trunk			trunk	trunk	trunk
Outward Movement		out			out

Table 3: Weighted Features on Negative Incorporating Verbs.

We are now only beginning to approach a natural phonology of sign languages based on physiological (Battison 1974, Siple 1973), developmental (McIntire 1974), and historical (Frishberg 1975, Woodward & Erting 1975) principles. Rationale for these features is tentative but in line with research in naturalness in sign phonology.

Negative Incorporation requires an outward twisting movement of the hand(s) from the place where the sign is made. These negative signs require more complex movement than their positive counterparts. Siple (1973) has shown that because of constraints on visual perception, signs on the face can allow much more complex hand configurations and movements than signs made on other parts of the body. Signs made on the trunk appear to allow the least complex configurations and movements. Signs already containing an outward movement in their positive form are also favored for Negative Incorporation because of economy of effort.

3.12 Correlation of Linguistic and Social Variation in American Signers. The use of Negative Incorporation for American signers does not correlate with the variables of parentage, age of sign language acquisition, or college education.[5] However, the relative use of Negative Incorporation does correlate with region. Table 4 shows the distribution of northeastern and northwestern informants in lectal patterns.

Lects	Northeastern	Northwestern
1-2	40 (37%)	26 (72.2%)
3-6	68 (63%)	10 (27.8%)

Table 4: Membership in Lects for American Informants by Region.

A chi square test of this data shows a dependency relationship at p .005 (x^2=11.99, df=1) for region. Northwestern signers pattern primarily in lects 1-2, which use Negative Incorporation in the most environments. Northeastern signers pattern primarily in lects 3-6 which use less Negative Incorporation. This difference may be due to the fact that there is considerably more pressure in D.C., because of Gallaudet College, to modify one's signing to approximate English more closely. As signing approaches English, it loses Negative Incorporation. Hearing signers also use significantly less Negative Incorporation than deaf signers (p .005, x^2=10.01, df=1, Woodward 1974).

3.2 French Signs. The five French cognates were tested to see if they underwent Negative Incorporation. With the exception of GOOD, all cognates did undergo variable Negative Incorporation. The implicational pattern of the four verbs was the same for French signers as for American signers. With 4 signs and 60 informants there was a total of 240 responses. There were 14 exceptions to

this implication, yielding a 5.8% rate of exception or a 94.2% rate of scability. Table 5 shows the pattern and the number of informants in each lect.

Lect	HAVE	LIKE	WANT	KNOW	Number
1	+	+	+	+	21
2	-	+	+	+	26
3	-	-	+	+	4
4	-	-	-	+	6
5	-	-	-	-	3
Total					60

Table 5: Negative Incorporation for French Signers.

There is an interesting problem with the data. If Negative Incorporation in FSL and ASL is undergoing the same basic patterns of variation in four verbs, why is there the problem of GOOD and BAD? Americans use Negative Incorporation categorically with GOOD to produce BAD, but French signers categorically do not use Negative I corporation with GOOD. The FSL sign BAD is not formationally related to GOOD, it is a completely separate lexical item.[6]

What we hypothesize is that Negative Incorporation began in FSL before 1816 as a process of phonological assimilation affecting in particular the signs KNOW, WANT, LIKE, and HAVE, in that order.

When FSL was brought to America and mixed or creolized with existing varieties of sign language in the U.S., Negative Incorporation was restructured as a grammatical process affecting the same four verbs and later GOOD in ASL. Let us look at this hypothesis in a little more detail.

Negative Incorporation is a phonological process in FSL. Word order in old and modern FSL is Verb + NOT. FSL NOT is produced in neutral space in front of the body with a G handshape (index finger extended from the fist). The index finger points upward and the palm is outward from the body. The G hand moves repeatedly from side to side. In Negative Incorporation, FSL NOT assimilates location and handshape to that of the preceding verb sign and loses its movement. This results in an outward twisting movement (to obtain the outward orientation of FSL NOT) from the place where the verb sign is made. Thus these negated signs have the same phonological structure in FSL and ASL. However, assimilation adequately describes the process of Negative Incorporation in FSL but not in ASL.

This assimilation began affecting FSL verbs KNOW, WANT, LIKE, HAVE in that order before 1816. Otherwise, there could be no Negative Incorporation in ASL, since ASL NOT has no formational relationship to FSL NOT. ASL NOT probably came

from some sign variety in America, since old and modern FSL do not have cognates for ASL NOT. ASL NOT may have been in competition for a time with FSL NOT in America, however ASL NOT appears to have won fairly quickly. The assimilated Negative forms of KNOW, WANT, LIKE, and HAVE remained as single units in ASL.

These lexical units became generalized into a grammatical rule in ASL with the Negative Incorporation of ASL GOOD into ASL BAD during the creolization of FSL and existing varieties of signing in the U.S. FSL and ASL GOOD are cognates. FSL BAD became ASL WORSE. Creolized ASL then had no single lexical unit for BAD or this unit lost in competition with BAD as a Negative Incorporation of GOOD. GOOD then gradually moved to its appropriate place in the implicational pattern because of its phonological characteristics. Finally, Negative Incorporation of ASL GOOD has become categorical.

Further support for the salience of the Negative Incorporation grammatical rule in ASL comes from observation of children's signing in which it is overgeneralized. There have been reported overgeneralizations by a child who already had the full implication. This child used the overgeneralized from *DON'T-LOVE.[7] It is also interesting to note that hearing signers, once they realize

that Negative Incorporation can apply to several verbs in ASL, begin making hypercorrections, e.g. *DON'T-THINK.

3.21 Features Conditioning the Variation in FSL. Because the implicational patterns of variation were the same for the signs that underwent Negative Incorporation in both French and American Sign Language, the same weighted features can be postulated for both the French and American signs.[8] This strengthens the argument for the naturalness of the phonological features that condition the variation.

3.22 Correlation of Linguistic and Social Variation in French Signers. The use of Negative Incorporation for French signers does not correlate with the variables of parentage or region. However, the relative use of Negative Incorporation in FSL does correlate with sex. Table 6 shows the distribution of male and female French informants in lectal patterns.

Lects	Male	Female
1-2	27 (69.2%)	20 (96.2%)
3-5	12 (30.8%)	1 (4.8%)

Table 6: Membership in Lects for French Informants by Sex.

A chi square test of this data reveals a dependency relationship at $p < .05$ ($\chi^2=4.01$, df=1) for sex. Female signers use more Negative Incorporation than male signers. This is an interesting development, since this is the first time a sex difference has been demonstrated

empirically for a sign language. This sex difference in FSL patterns very nicely with what is known about sex differentiation in oral languages. Labov (1972) points out that women are generally ahead of men in relation to linguistic change. This is exactly what we find here. Negative Incorporation in FSL is still a type of assimilation for French signers; it is a type of language change. Since women are using more negatively assimilated forms than men, they are using new linguistic forms more than males.

4.0 Conclusion. This paper has examined the process of Negative Incorporation in both French and American Sign Language. The patterns of variability were shown to be the same for the signs KNOW, WANT, LIKE, and HAVE. For the 144 American signers and the 60 French signers: 1) signs made on the face undergo Negative Incorporation more often than signs that are made elsewhere; 2) signs that are not made on the trunk undergo Negative Incorporation more often than signs that are made on the trunk; 3) signs containing an outward movement in their positive forms undergo Negative Incorporation more often than signs that do not have an outward movement.

GOOD undergoes categorical Negative Incorporation in ASL, while no French signers use Negative Incorporation with GOOD. We have hypothesized that this difference is due to early creoli-

zation of ASL. This creolization also restructured Negative Incorporation from phonological assimilation in FSL to a grammatical rule in ASL.[9]

The amount of Negative Incorporation varied with social background factors of signers. French signers used less Negative Incorporation than American signers, since French signers had categorical absence of Negative Incorporation with GOOD. Among French signers, women used more Negative Incorporation than men. Among American signers, northwestern signers used more Negative Incorporation than northwestern signers. The trend for French signers to use historically more conservative forms more often than Americans was also found in earlier studies by Woodward (1976a) and Woodward & DeSantis (1975). The fact that French women signers use more negatively assimilated forms than French men follows the expected situation that women are generally ahead of men in relation to linguistic change. Northeastern signers may use less Negative Incorporation than northwestern signers, because of Gallaudet College's pressure on eastern signers to approximate English in their signing.

Negative Incorporation not only offers interesting insights into the structure of FSL and ASL, but also into the descriptive and explanatory power of variation theory. By viewing

Negative Incorporation in a dynamic framework, we are able 1) to describe the variable usage of Negative Incorporation as a phonological process in FSL and as a grammatical process in ASL, 2) to show the historical continuum between FSL and ASL despite heavy restructuring, and 3) to demonstrate the influences of social variables on language variation and change, especially illustrating the progressive role of women in sign language change and the conservative forces in FSL as compared with ASL.

NOTES

[1]This paper was presented at the Annual Meeting of the Linguistic Society of America, Philadelphia, December, 1976. Research on which this paper was based was supported in part by NEH Research Grant RO-21418-75-196, NSF Research Grants GS-31349 and SOC74-14724, and NIMH Research Grant NS-10302-01. The findings and views presented in the paper do not necessarily represent the view of the granting agencies.

[2]See Stokoe 1960 and Croneberg 1965 for the importance of residential schools in maintaining cultural solidarity in the deaf community.

[3]Even if the analysis is restricted to words chosen from the Swadesh 200 word list, Woodward (1976b) found 39% rate of cognates for 70 pair. This would hypothetically date the arrival of FSL even earlier, between 707 B.C. and 317 A.D. at a 90% level of confidence. Intralanguage glottochronological comparisons show expected time depths however. For example, Gelj'man (1957) found a 97.5% rate of cognates for 70 pair of Russian signs in a real 122 year time span. Glottochronological procedures indicated a hypothetical span of 14-130 years at a 90% level of confidence. Woodward (1976b) shows a 99% rate of cognates for 423 pair of ASL signs in a real 58 year time span.

Glottochronological analyses showed a hypothetical span of 5-41 years at a 90% level of confidence. Woodward (1976b) also showed a 99.6% of cognates for 251 pair of ASL signs with a real time depth of 63 years. The time depth estimated by glottochronology was 9 years.

[4]Data was also collected from 33 hearing signers, but it is not included in this study.

[5]Other ASL grammatical variables, e.g. Agent-Beneficiary Directionality, have been shown to correlate strongly with these variables.

[6]FSL BAD is cognate with ASL WORSE, the only difference being that many French signers do not have assimilated handshapes for the sign, while American signers do.

[7]We would like to thank Dennis Cokely for pointing out this example to us.

[8]The fact that French GOOD does not undergo Negative Incorporation does not affect the relative weightings of features.

[9]The restructuring of a grammatical variation to a phonological variation occurs in natural language change in oral languages, e.g. IS deletion in Black English (Fasold 1976). Since phonology is more subject to change than grammar, this situation is expected. However, the restructuring of a phonological change

to a grammatical change is quite a different matter. We feel that such restructuring as we have found would be more likely caused by creolization than by natural internal language change.

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